Ozone

Ozone is a colorless, odorless gas formed when nitrogen oxides and volatile organic compounds react in the presence of intense sunlight.

OZONE FORMATION

Ozone is formed when ***nitrogen oxides*** (from fuel burning sources like utilities and automobiles) and ***volatile organic compounds*** (from sources such as gasoline, paints, inks and solvents) react in the presence of sunlight. These two categories of pollutants are also referred to as ***ozone precursors***. The formation of ozone is dependent on the volume of air available for dilution, air temperature and the amount of sunlight.

SOURCES

Nitrogen oxides are emitted from fuel burning sources including electric utilities, industrial boilers and vehicles. Sources of volatile organic compounds include paints, inks, solvents and gasoline.

HEALTH EFFECTS

- Ozone can irritate the respiratory system, causing coughing, throat irritation, and chest pains.
- Ozone can reduce lung function and make it more difficult to breathe deeply and vigorously.
- Ozone can aggravate asthma. One reason this happens is that ozone makes people more sensitive to allergens, the most common triggers of asthma attacks.
- Ozone can increase susceptibility to respiratory infections.
- Ozone can inflame and damage the lining of the lungs. Within a few days, the damaged cells are shed and replaced—much like the skin peels after a sunburn. Animal studies suggest that if this type of inflammation happens repeatedly over a long time period (months, years, a lifetime), lung tissue may become permanently scarred, resulting in less lung elasticity, permanent loss of lung function, and a lower quality of life.
- Children are at even greater risk, because their respiratory systems are developing, they're more active and spend more time out of doors, and *kids breathe in more air per pound of body weight than do adults*.
- People with respiratory diseases that make their lungs more vulnerable to ozone may experience health effects earlier and at lower ozone levels than less sensitive individuals.

PUBLIC WELFARE EFFECTS:

On Materials

- Ozone accelerates the aging of many materials. It can cause rubber to crack, dyes to fade and paint to erode.

On Leafy Plants

- Ozone injury to vegetation develops initially at the tips of younger leaves and becomes more widespread as the leaves mature. The most common ozone symptoms on broad-leaved plants are small flecks visible on the upper leaf surface.

On Agricultural Plants, Flowers and Trees

- Some of the other agricultural and garden vegetation affected by ozone include tobacco, corn, soybeans, tomatoes, melons, onions and grapes. Trees and flowers may also be affected by ozone. Gladiolus, azaleas, white pine trees, locust trees, white oak and poplar trees are all sensitive to this toxic gas.